

Notice of Allowability

Application No.

10/045,462

Examiner

Ling-Siu Choi

Applicant(s)

EWEN, JOHN A.

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 09/14/04.
2. ☒ The allowed claim(s) is/are 37-66.
3. ☐ The drawings filed on _____ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

1. This Office Action is in response to the Appeal Brief filed September 14, 2004. Claims 1-36 were canceled and claims 37-78 are now pending, wherein claims 37-66 have been elected. It is noted that claims 37-48 are drawn to an isotactic polymer obtained in the presence of a metallocene comprising a **substituted cyclopentadienyls** bridged by a **silicon hydrocarbyl radical**; claims 49-55 an isotactic polymer obtained in the presence of a metallocene comprising indenyl bridged with a **silicon hydrocarbyl radical**; claims 56-66 an isotactic polymer obtained in the presence of a metallocene comprising **substituted indenyl** bridged with **alkylene radical** or a **silicon hydrocarbyl radical**.

Examiner's Amendment

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CAR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. William D. Jackson on November 17, 2004.

3. The application has been amended as follows:

Replace the first paragraph of the specification on page 1 with the following paragraph:

-- This is a continuation of copending prior U.S. Application Serial No. 09/574,339 filed May 20, 2000, now US Patent No. 6,344,577 B1, which is a continuation of prior U.S. Application Serial No. 08/812,364 filed March 5, 1997, now US Patent No. 6,117,957, which is a continuation of prior U.S. Application Serial No. 07/696,408 filed May 6, 1991, now US Patent No. 5,846,896, which is a continuation of prior US Application Serial No. 07/317,089 filed February 28, 1989, now abandoned, which is a continuation of prior U.S. Application Serial No. 07/034,472 filed April 3, 1987, now abandoned. --

Cancel claims 67-78 without prejudice;

Claim 56, line 7, change "silicon hydrocarbyl" to --silicon hydrocarbyl radical--.

Allowable Subject Matter

4. Claims 37-66 are allowed.
5. The following is an examiner's statement of reasons for allowance:

The present claims are allowable over the closest references: Kaminsky et al. (US 4,769,510) and Ewen (US 4,522,982).

The present invention relates to **an isotactic polymer** obtained in the presence

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of a catalyst comprising

a chiral, stereorigid metallocene in the form of $R''(C_5R'_m)_2MeQ_p$ wherein **R''** is a **silicon hydrocarbyl radical** acting as an interannular bridge between the two $(C_5R'_m)$ rings and $m = 1-4$

(summary of claim 37)

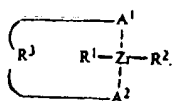
a chiral, stereorigid metallocene in the form of $R''(C_9R'_m)_2MeQ_p$,wherein **R''** is a **silicon hydrocarbyl radical** acting as an interannular bridge between the two $(C_9R'_m)$ rings and $m = 0-4$

(summary of claim 49)

a chiral, stereorigid metallocene in the form of $R''(C_9R'_m)_2MeQ_p$,wherein **R''** is an **alkylene radical** or a **silicon hydrocarbyl radical** acting as an interannular bridge between the two $(C_9R'_m)$ rings and $m = 1-4$

(summary of claim 56)

Kaminsky et al. disclose a (co)polymer of propylene, which have a **high degree of isotacticity**, the (co)polymer being obtained in the presence of a catalyst system composed of (a) a zirconium compound which is stereo-rigid and chiral and (b) a linear or cyclic aluminoxane (abstract), wherein the stereo-rigid, chiral zirconium compound is a π -linked, unsymmetrical, mononuclear or polynuclear compound which contains linear or cyclic hydrocarbon chains as bridges and corresponds to the following general structural formula:



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with A^1 and A^2 independently being a mononuclear or polynuclear, unsymmetrical hydrocarbon radical such as an indenyl group or a substituted cyclopentadienyl group; **R^3 being a linear C_{1-4} hydrocarbon radical or a cyclic C_{3-6} hydrocarbon radical**; and R^1 and R^2 being halogen (col. 1, lines 63-67; col. 2, lines 1-19). However, Kaminsky et al. do not teach or fairly suggest a polymer obtained in the presence of a metallocene comprising a silicon hydrocarbyl radical as the interannular bridge or a metallocene comprising substituted indenyl bridged with hydrocarbyl radical. Furthermore, the use of the silicon hydrocarbyl radical as the interannular bridge results in a high intrinsic viscosity and T_m compared with ones obtained by the use of hydrocarbyl radical as the interannular bridge.

Ewen discloses an isotactic-stereoblock polypropylene which is obtained in the presence of a catalyst comprising a metallocene in the general formula of **$(C_5 R'_m)_p R''_s (C_5 R'_m)_2 MeQ_{3-p}$ or $R''_s (C_5 R'_m)_2 MeQ'$** , wherein $(C_5 R'_m)$ is a cyclopentadienyl or substituted cyclopentadienyl, each R' being hydrogen or a hydrocarbyl radical containing from 1 to 20 carbon atoms and, optionally, two adjacent carbon atoms being joined together to form a C_{4-6} ring; **R'' is a C_{1-4} alkylene radical**, a dialkyl germanium or **silicone**, or an alkyl phosphine or amine radical bridging two $(C_5 R'_m)$ rings; Q is a hydrocarbyl radical or halogen; Q' is a alkylidene radical having from 1 to about 20 carbon atoms; and Me is a group 4b, 5b, and 6b metal from the Periodic Table (col. 4, lines 46-68). However, Ewen do not teach or fairly suggest an isotactic polymer.

In light of the above discussion, it is evident as to why the present claims are patentable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

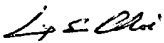
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098. The examiner can normally be reached on Monday to Friday.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reach on 571-272-1114.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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LING-SUI CHOI
PRIMARY EXAMINER

November 17, 2004